

**STATE  
THREATENED**

## Pygmy Snaketail

(*Ophiogomphus howei*)



Blair Nikula

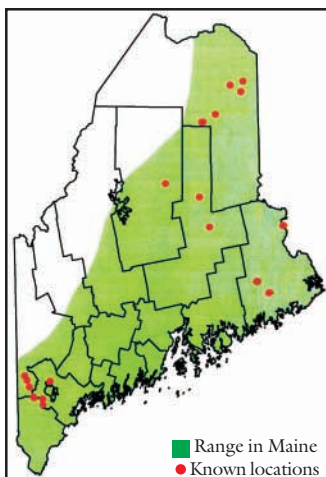
### Description

The snaketail dragonflies are indicators of clean, free-flowing waters, and Maine has more species than any other state. The pygmy snaketail is a small, 1¼-inch, olive-green dragonfly with brown stripes and bright yellow markings on a black abdomen. The wings have a distinctive yellow-orange cloud at the base which encompasses about half or more of the rear wing. The larvae and exuviae (cast larval skins) can be identified by the shape of their wing pads and structures on their abdomen.

### Range and Habitat

This dragonfly occurs in eastern North America from Kentucky north to Minnesota and east to New Brunswick. It has a patchy distribution throughout this range, and is typically not abundant at most sites where it is found. The pygmy snaketail prefers clean, fast-flowing, moderate to large-sized rivers with gravel or sand bottoms in predominantly forested watersheds. In Maine it occurs in the Saco,

Crooked, Aroostook, Penobscot (East and West Branch and main stem), St. Croix, Machias, and Allagash Rivers.



### Life History and Ecology

Dates of nymph emergence depend on water temperatures, but typically the pygmy snaketail emerges in

early June in southern Maine and mid to late June in the north. The aquatic nymphs crawl out of the river onto rocks, detritus, and vegetation along riverbanks, split their larval skins (exuvia), and fly away as immature adults (called teneral). The young adults may fly significant distances from the river to feed in forested environments. They are believed to feed on smaller flying insects high in the forest canopy, where the adults are exceedingly difficult to find. Adults require about a week to mature. Because of their small numbers and cryptic behavior, populations are most frequently located and assessed by finding exuvia.

Adults are not territorial along the river, but have been observed returning in small numbers to patrol the river in search of mates, and to lay eggs. Because of their diminutive size, they probably cannot compete with larger territorial dragonflies along the river (and may even be consumed by some!). Their flight period may last through July. Studies on the Aroostook River suggest that nymphs undergo 10-12 instars (periods of growth) and require two years to mature. Nymphs burrow into clean gravel and sand, usually in deeper water where they prey on other aquatic invertebrates. Local emergence of all the nymphs at once takes place over a 1-4 day period and peaks between 10:00 a.m. and 2:00 p.m. Mass emergence may serve as a survival strategy to saturate potential predators, especially birds.

### Threats

The distribution of dragonflies in the genus *Ophiogomphus* (the “snaketails”) is limited by the availability of clean, free-flowing rivers and streams having appropriate sand and gravel bottoms and

forested riparian areas. They are one of the least tolerant groups of dragonflies to changes in water quality. Increased sedimentation and other sources of nonpoint pollution (e.g., runoff from roads and storm sewers, agricultural fertilizers, pesticides) contribute to their demise. Dams and intensive watershed development have caused past declines. Shoreline development, roads in riparian habitats, excessive riparian logging, and use of broad-spectrum pesticides further threaten populations. In the Midwest, *Ophiogomphus* species are no longer found in watersheds that are less than half to two-thirds forested.

## Conservation and Management

The pygmy snaketail was a former candidate for federal listing. It was state-listed as threatened in Maine in 1997 because of its limited distribution and low numbers. This dragonfly has declined and disappeared from many rivers in the Northeast. Surveys have shown that Maine, with its relatively clean, free-flowing rivers in forested watersheds, has some of the best populations remaining in the Northeast. As such, Maine will play a major role in the future conservation of this species.

Conservation of the pygmy snaketail and other riverine dragonflies and damselflies requires protection of clean, unaltered rivers with natural forested riparian areas. This species shares much of its riverine habitat in Maine with other listed species, such as the Atlantic salmon (endangered), yellow lampmussel (threatened), tidewater mucket (threatened), and other rare species like the brook floater (mussel) and wood turtle. Adhering to state wetland and Shoreland Zoning laws and water quality Best Management Practices contributes greatly to maintaining the quality of aquatic habitats for this species. Shoreland zoning and LURC zoning standards provide protection of habitat up to 250 feet from larger rivers. Some forest companies voluntarily extend the conservation of intact, forested riparian zones to 330-660 feet for larger rivers. Pygmy snaketails are strictly protected from take (collecting, possessing, or killing) without a scientific collecting permit.

## Recommendations:

- ✓ Prior to land development or forest harvesting near waterways providing habitat for threatened and endangered species, consult with a biologist from MDIFW to assist with planning.
- ✓ Municipalities should strive to maintain areas adjacent to waterways providing habitat for threatened and endangered species in a low-density, rural

setting and identify these areas in comprehensive plans. Consider protecting waterways and a 250-foot upland buffer as Resource Protection Districts.

- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Follow Shoreland Zoning and LURC standards.
- ✓ To preserve water quality and river functions, maintain contiguous, forested riparian habitats at least 250 feet from waterways providing habitat for threatened and endangered species.
- ✓ To preserve adult feeding and maturation habitat for threatened and endangered dragonflies and mayflies, maintain forested buffers and wetlands up to 600 feet from rivers where they occur.
- ✓ Avoid placing roads, houses, yards, and other developments within 250 feet of waterways providing habitat for threatened and endangered species.
- ✓ When projects are proposed within 250 feet of waterways providing habitat for endangered or threatened species, adhere to forestry Best Management Practices (handbook available from the Maine Forest Service, SHS #22, Augusta, ME 04333) and Maine Erosion and Sediment Control Recommendations (available from the Maine Department of Environmental Protection, SHS #17, Augusta, ME 04333).
- ✓ Avoid road crossings or use of heavy equipment in streams or rivers.
- ✓ Avoid stream alteration projects (water withdrawals, dredging, rip-rap, channelization, pipeline crossings, dams) that would alter flow or remove natural stream features such as riffles and pools.
- ✓ Avoid the use of broad-spectrum pesticides within ¼ mile of waterways providing habitat for threatened and endangered species.
- ✓ To maintain or improve water quality, conduct thorough reviews of dam and wastewater discharge proposals. Avoid land uses that would contribute to non-point sources of pollution.
- ✓ It is illegal to introduce fish species. Such introductions could alter aquatic invertebrate communities. 🐛